

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Toshiharu Furukawa et al. Confirmation No.: 6993  
Art Unit: 1756  
Serial No.: 10/798,908  
Examiner: Stephen D. Rosasco  
Filed: March 11, 2004  
Atty. Docket No.: ROC9200300389US1  
For: METHODS OF FORMING ALTERNATING PHASE SHIFT MASKS  
HAVING IMPROVED PHASE-SHIFT TOLERANCE

Cincinnati, Ohio 45202

Date: January 9, 2007

**DECLARATION UNDER RULE 131**

Commissioner of Patents and Trademarks  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

We, Toshiharu Furukawa, Mark Charles Hakey, Steven John Holmes, David Vaclav Horak, Charles William Koburger, III, Peter H. Mitchell, and Larry Alan Nesbit (the inventors), being duly cautioned and sworn, submit this Declaration in response to the Office Action dated December 20, 2006, and state:

That we are the inventors of the invention entitled "METHODS OF FORMING ALTERNATING PHASE SHIFT MASKS HAVING IMPROVED PHASE-SHIFT TOLERANCE" described and claimed in the application for Letters Patent of the United States, Serial No. 10/798,908, filed March 11, 2004 (the '908 application);

That this is a Declaration under the provisions of Rule 131 and the rules of practice for the United States Patent Office in support of the '908 application;

That the invention described and claimed in the '908 application was conceived prior to November 14, 2003, the publication date of French Publication No. 2839560 and prior to

November 20, 2003, the publication date of International Publication No. WO03/096121, each of these documents in the name of Thony;

That, as evidence of the conception of the invention described and claimed in the '908 application, attached and incorporated into this Declaration as an Exhibit is a copy of a written invention disclosure, which bears a date (now masked), created by one or all of the undersigned inventors in the United States before November 14, 2003 and bearing a date before November 14, 2003 (but with said date now masked);

That the attached Exhibit includes a detailed description of a method of fabricating an alternating phase shift mask and an alternating phase shift mask, which clearly demonstrates that such method of fabricating the alternating phase shift mask and the alternating phase shift mask embody the elements claimed in at least pending independents claim 1 and 27 of the '908 application, and which were conceived before the November 14, 2003 publication date of Thony;

That the conception of the inventions claimed in at least pending independent claims 1 and 27 of the '908 application is fully supported by the attached Exhibit, and that all drawings and text included in the Exhibit having been created in the United States by one or all of the undersigned inventors before the November 14, 2003 publication date of Thony;

That the Exhibit demonstrates as follows:

That a method of fabricating an alternating phase shift mask was conceived before November 14, 2003;

That the method of fabricating an alternating phase shift mask comprised forming a layer of a phase shift mask material on a handle substrate; patterning the layer to form a plurality of phase shift windows in the phase shift mask material; and transferring the patterned layer from the handle substrate to a mask blank to construct the alternating phase shift mask, as called for in pending independent claim 1 in the '908 application;

That an alternating phase shift mask was conceived before November 14, 2003;

That the alternating phase shift mask was produced by the process comprising forming a layer of a phase shift mask material on a handle substrate; patterning the layer to form a plurality of phase shift windows in the phase shift mask material; and transferring the patterned

layer from the handle substrate to a mask blank to construct the alternating phase shift mask, as called for in pending independent claim 27 in the '908 application;

That the undersigned inventors were diligent from before November 14, 2003, which represents the publication date of U.S. Patent Application Publication No. 2004/0217391, to March 11, 2004, which represents the filing date of the '908 application. Specifically, the undersigned inventors can account for the entire period during which reasonable diligence is required with affirmative acts within the United States and acceptable excuses. During this period, the attorneys acted within the United States with reasonable diligence on the application. Specifically, in-house counsel for the Assignee was reasonably diligent in considering the attached Exhibit prepared by the inventors and subsequently forwarding the attached Exhibit to outside counsel for the Assignee on November 11, 2003 with instructions to prepare a patent application on the subject matter of the Exhibit. Subsequently, outside counsel for the Assignee was reasonably diligent in preparing a working draft of specification the '908 application and forwarding the working draft of the specification to the inventors for their review on February 17, 2004. In particular, outside counsel for the Assignee had a reasonable backlog of unrelated cases taken up in chronological order and carried out expeditiously. The inventors were reasonably diligent in reviewing and approving the working draft of the specification between February 17, 2004 and February 24, 2004. Outside counsel for the Assignee was reasonably diligent in finalizing the specification of the '908 application, after receiving comments from the inventors' review, and forwarding the finalized specification to in-house counsel for the Assignee on February 24, 2004. In-house counsel for the Assignee was reasonably diligent in forwarding the specification for the '908 application and a Declaration/Power of Attorney to the inventors, who executed the Declaration/Power of Attorney on March 3, 2004 and March 10, 2004. In-house counsel for the Assignee was reasonably diligent in filing the '908 application and the executed Declaration/Power of Attorney at the U.S. Patent and Trademark Office on March 11, 2004;

Therefore, in summary, the Declaration and attached Exhibit constitute a showing of facts, in character and weight, that establish conception of the invention prior to the publication date of French Publication No. 2839560 and prior to the publication date of International Publication No. WO03/096121 for a method of fabricating an alternating phase shift mask and an

alternating phase shift mask that are the subjects of and are claimed in Application Serial No. 10/798,908, all the acts of which occurred in the United States BEFORE November 14, 2003, and thus precede the publication date of French Publication No. 2839560 and the publication date of International Publication No. WO03/096121, and that the inventors and counsel for the inventors exhibited diligence from prior to the publication date of November 14, 2003 for French Publication No. 2839560 and from prior to the publication date of November 20, 2003 for International Publication No. WO03/096121, each in the name of Thony, to the filing date of the '908 application;

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Further declarants sayeth naught.

By \_\_\_\_\_  
Toshiharu Furukawa

Date \_\_\_\_\_

By Mark Charles Hakey  
Mark Charles Hakey

Date 1/10/2007

By \_\_\_\_\_  
Steven John Holmes

Date \_\_\_\_\_

By \_\_\_\_\_  
David Vaclav Horak

Date \_\_\_\_\_

By \_\_\_\_\_  
Charles William Koburger, III

Date \_\_\_\_\_

By Peter H. Mitchell  
Peter H. Mitchell

Date January 9, 2007

By \_\_\_\_\_  
Larry Alan Nesbit

Date \_\_\_\_\_